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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,751	07/13/2001	Wolfram Kluge	2000.066100DE0028	3346
23720	7590	10/22/2004	EXAMINER	
WILLIAMS, MORGAN & AMERSON, P.C. 10333 RICHMOND, SUITE 1100 HOUSTON, TX 77042			KNOWLIN, THJUAN P	
			ART UNIT	PAPER NUMBER
			2642	

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/904,751

Applicant(s)

KLUGE ET AL.

Examiner

Thjuan P Knowlin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/09/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Itoh et al (US 5,787,126).
2. In regards to claims 1 and 6, Itoh discloses a harmonic mixer (even harmonic quadrature mixer 41) comprising: a multiplier circuit (Gilbert cell and col. 9 lines 9-27) comprising first and second mixers (even harmonic mixers 40a and 40b); and a generator (buffer amplifiers 43a and 43b and differential amplifier 86) for generating two first and two second signals for controlling said first and second mixers (col. 12 lines 47-57 and col. 19 lines 14-27); wherein said two first and two second control signals are balanced signal and are provided in four phases each shifted by $3.14/2$ in phase (col. 9 lines 19-27, col. 9-10 lines 55-3, and col. 10 lines 18-35); and said control signals having a frequency different from a frequency of a mixer input signal (col. 3-4 lines 55-7).
3. In regards to claims 2, 5, 7, and 10, Itoh discloses the harmonic mixer, wherein said multiplier circuit is a Gilbert cell having a plurality of transistors (transistors 84a and

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84b and transistors 19a-19f), where all said transistors are used as switches (col. 2 lines 25-28 and col. 20 lines 31-67).

4. In regards to claim 3, Itoh discloses the harmonic mixer, wherein the generator comprises a voltage controlled oscillator (local oscillator 8) (col. 9 lines 38-46).

5. In regards to claims 4 and 9, Itoh discloses the harmonic mixer, wherein the frequency of said control signals is half the frequency of the mixer input signal (col. 10 lines 48-63, col. 14 lines 50-62, and col. 15 lines 1-11).

6. In regards to claim 8, Itoh discloses the harmonic mixer, wherein said generator comprises a voltage controlled oscillator (local oscillator 8) and a filter bank (band pass filter 3 and low pass filters 9a and 9b) (col. 9 lines 19-27 and col. 9 lines 38-46).

7. In regards to claims 11 and 12, Itoh discloses the harmonic mixer, wherein said filter bank comprises: an initial $3.14/4$ phase shifter (phase shifter 42); and first and second polyphase filters for generating said eight control signals (col. 9 lines 19-27 and col. 9-10 lines 55-3).


Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Molnar et al (US 6,370,372) teach a subharmonic mixer circuit and method. Bien (US 5,465,415) teaches an even order term mixer. Bonato (US 5020148) teaches an image suppression harmonic frequency converter operating in the microwave field.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thjuan P Knowlin whose telephone number is (703) 308-1727. The examiner can normally be reached on Mon-Fri 8:00-4:30pm.
10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (703)305-4731. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thjuan P. Knowlin


AHMAD MATAR
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